

AMENDMENTS TO THE SPECIFICATION:

Please replace paragraph 0004 with the following amended paragraph:

[0004] The present invention solves the partial obstruction of film-cooling holes due to TBC's sprayed on the airfoils of the buckets by changing the configuration of the film-cooling holes to include a counter-bore at the outlet or exit ends of the film-cooling holes. It is contemplated that the counter bores would be applicable to the holes along the leading edge shower head, gill holes and the holes around the bucket tip region. The counter-bore diameter and depth are specific to the design, and have been optimized for performance. For example, in one exemplary embodiment, a counter-bore of 0.053 inches on a 0.033 inch diameter through-hole extends about 0.03 inches from the outlet surface of the airfoil on the minimal dimension.

Please replace paragraph 0006 with the following amended paragraph:

[0006] Accordingly, in one aspect, the invention relates to a turbine component having a plurality of film-cooling holes formed in a region of the component to be cooled, the cooling holes each having specified diameter, each hole at an exit thereof formed with a counter-bore of predetermined depth; the component having a coating applied thereto at least in the region, wherein the counter-bore provides an area for excess coating material to accumulate without reducing the specified diameter.

Please replace paragraph 0008 with the following amended paragraph:

[0008] In still another aspect, the invention relates to a method of maintaining cooling efficiency of film-cooling holes in a turbine component where the film-cooling holes have specified diameters and the turbine component has a protective coating therein thereon

comprising: a) before coating, forming each film-cooling hole with a counter-bore and an exit end of the film-cooling hole; and b) spraying the coating onto the turbine component at least in areas surrounding the film-cooling holes such that excess coating material accumulates in the counter-bore without reducing the specified diameter of the cooling holes.

Please replace paragraph 0013 with the following amended paragraph:

[0013] Referring now to Figure 1, there is illustrated a turbine bucket 10 constructed in accordance with the present invention including an airfoil 12 mounted on a platform 14, and a shank portion 15. The turbine bucket also includes forward and aft wheel space seals, i.e., angel wings 16, 18, respectively. The buckets 10 are adapted for mounting on the turbine wheel in conventional fashion. The airfoil 12 has a profile including a compound curvature with pressure and suction sides 20, 22, respectively, as well as a leading edge 24 and trailing edge 26.

Please replace paragraph 0015 with the following amended paragraph:

[0015] Figure 2 is a sketch of a conventionally-shaped film-cooling hole 28 formed in a test plate along a simulated leading edge 24. It can be seen that excess TBC material 30 (including bondcoat 31 and ceramic top coat 33) that coats the simulated leading edge area accumulates within a portion of the hole 28, resulting in a decreased effective diameter of the hole at the outlet thereof. In a real cooling hole on a bucket, this condition decreases cooling efficiency.

Please replace paragraph 0016 with the following amended paragraph:

[0016] Figure 3 illustrates in detail one example of a film-cooling hole in accordance with the invention. Film-cooling hole 32 is shown to be located at the radially outer end of a bucket 34, along the leading edge 36. The film-cooling hole has a nominal diameter "d" that extends outwardly from an internal region 38 of the bucket. In accordance with the invention, film-cooling hole 32 is concentrically counter-bored at 40 to a diameter "d1" from its outlet on the leading edge 36 inwardly to a predetermined depth "h." The hole 32 and counterbore 40 are parallel (i.e., they have uniform, concentric diameters) and are connected by a sharp, i.e., 90°, shoulder 42. In a typical example, the nominal diameter d of the film cooling hole 32 is (or about) 0.033 in. For this size cooling hole, the counter-bore 40 has been formed with a diameter d1, of (or about) 0.053 in. It will be appreciated that the dimensional relationships and dimensions themselves may be varied to suit different size buckets. It will further be appreciated that the invention is applicable to cooling holes in any areas on any components that are coated. The counter-bore will provide adequate space to accommodate excess TBC coating material without reduction of the effective cooling flow.